

WaterLine

A publication about Ontario's water and wastewater industry.

INNOVATION

Spurring innovation in Ontario's water/wastewater sectors

As Ontario municipalities face growing challenges around water/wastewater treatment, there's a renewed call for new, innovative solutions

In trying to define 'innovation', you'd be hard-pressed to find a quotation better than that of Henry Ford, who once said, "If I had asked the public what they wanted, they would have said a faster horse."

At its core, true innovation is about using knowledge and ideas to produce new, or significantly improved, products or processes. And as Ontario faces a growing set of challenges related to its water and wastewater sectors (e.g. population growth, increased industrialization and urbanization, aging water infrastructure) there's a renewed push for the kind of truly innovative thinking required to turn these challenges into opportunities in the years to come.

It's an exciting time in the water services industry. Every few months, it seems, we're witnessing the introduction of a new technology that promises to

revolutionize some feature or aspect of the water/wastewater treatment process. In some cases, that innovation is the result of advances in technology. For example, more Ontario municipalities are choosing to replace the old, loud, energy-guzzling blowers in their wastewater facilities with new, jet-based models that are much more energy efficient.

In other cases, innovation means applying the simplest of natural solutions to a modern dilemma, such as sludge management. In our story on page 3, we look at how constructed wetlands (e.g. reed beds) are being used as an inexpensive, environmentally-friendly alternative to traditional sludge management.

These are just two examples of the kind of creative, strategic re-thinking that promise to help Ontario's municipalities

successfully confront the challenges facing them in the areas of water and wastewater treatment – today and tomorrow.

For its part, the Ontario government squarely supports this renewed drive for innovation. Last spring, the government unveiled the *Water Opportunities and Conservation Act*, new legislation that promises to make Ontario one of the world's leader centres for the development and sale of forward-thinking technologies and work practices in water conservation and treatment. The Act aims to foster innovative water and wastewater technologies and services, create ambitious conservation targets and generate new, clean tech jobs.

And as the province's largest operator of water and wastewater treatment plants, OCWA is committed to continuing to pursue, embrace and adopt these types of new, innovative solutions to increase our efficiency, protect Ontario's precious water resources and position our clients for long-term success.



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Innovation is alive and well in the water and wastewater industry

A message from Jane Pagel, President and CEO

As the new President and CEO of the Ontario Clean Water Agency, it is my absolute pleasure to welcome you to the winter 2010 edition of *Waterline*.

Our cover story this quarter focuses on innovation, which has been the focus of much of my career and to which I am strongly committed. One of the truly exciting aspects of the water and wastewater industry today is the pace with which new, improved processes and technologies are being introduced. Case in point: the new, high tech turbo blowers that are being installed at a growing number of facilities throughout the province. Inspired by jet engine technology, these new blowers are frictionless, much quieter and more energy efficient than their predecessors. And they're virtually maintenance free. These new blowers represent the brand of creative re-thinking that continues to revolutionize the way we treat water and wastewater in Ontario.

In other cases, as with our story on 'reed beds' on page 3, innovation comes in a decidedly more low tech package. The promise of a completely natural, low cost, low energy way to handle sludge is generating real interest in hundreds of rural communities that have struggled with this dilemma for years.

These are just two of the dozens of examples of innovation in action in the water and wastewater industry today. Thomas Edison once said, "There's a way to do it better – find it." And that's precisely the spirit behind the continuing wave of innovation in our industry today.

Ultimately, the benefits of this continuing

advancement, including more efficient operations, lower energy costs and more environmentally-friendly processes, extend to communities like yours, as well as the people and businesses you represent. That's the power of innovation. And you have my commitment that OCWA will continue to embrace this spirit of innovation in the months and years ahead.

OCWA appoints new President and CEO

We're pleased to announce the appointment of Jane Pagel as the new President and CEO of OCWA, effective November 1, 2010. Ms. Pagel is a highly-experienced leader with an extensive background in both Government and the private sector. Most recently, she served as Senior Vice President with one of Canada's largest consulting engineering, environmental and earth sciences companies.

"Jane comes to OCWA with a well-earned reputation for providing the highest possible quality of service and she is also known for her strong leadership qualities," said Michael Garrett, Chair of OCWA's Board of Directors. "Jane, like all of us at OCWA, is committed to continuing to provide safe and efficient water and wastewater services to the people of Ontario, backed by the highest quality of service."

In addition to her new role with OCWA, Ms. Pagel serves on the board of Sustainable Development Technology Canada, chairing the board's Project Review Committee. She is a former President of Zenon Environmental Laboratories and was also a longstanding member of the Prime Minister's Advisory Council on Science and Technology.

Debate over fluoridation of water continues

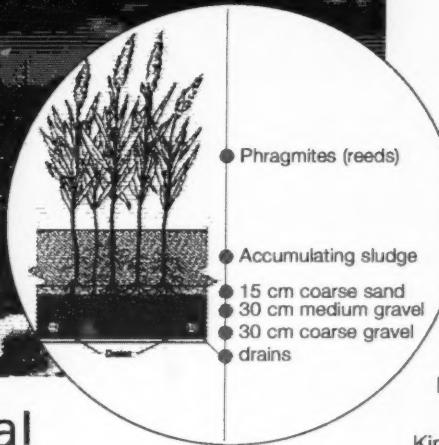
It's been a common practice throughout Canada for nearly half a century, but the debate over the fluoridation of drinking water continues.

A new book co-authored by American academic and

public health advocate Dr. Paul Connett claims fluoride can lead to an array of health problems, including arthritis, an increased risk of hip fractures and lower IQs in children. In *The Case Against Fluoride*, Dr. Connett also suggests fluoridation of drinking water would never pass a modern drug-style clinical trial or risk assessment.

However, the practice of fluoridating water is supported by Health Canada and most dental associations, which say it's a safe, low-cost way to prevent tooth decay.

In Ontario, the decision to fluoridate is made by each individual municipality, while water treatment operators are responsible to ensure the water meets Ontario's Drinking Water Standards for all parameters, including fluoride.



Reed beds: A natural alternative to handling sludge

As every municipality knows, sludge happens. The real question is what to do with it. Sludge management continues to present municipalities with an array of challenges, including issues around sludge stabilization, dewatering and storage and options for final disposal.

A pilot project in eastern Ontario, however, holds the promise of a simple, low cost and environmentally-friendly method for handling sludge that could have implications for hundreds of municipalities throughout the province. The secret behind this incredible 'technology' is decidedly low tech. In fact, it's something you've probably seen growing on the side of the road: reed beds.

"Reed beds are a kind of constructed wetland technology that can provide long-term storage and volume reduction of biosolids," says Chris Kinsley, Professor at the Alfred Campus of the University of Guelph and Manager of the Ontario Rural Wastewater Centre.

The concept is simple enough. A gravel and sand filter is built on a drainage pad and reeds (*Phragmites Australis*) are planted in the sand. The digested sludge is applied to the reed bed and nature is allowed to take its course. "The liquid drains through the sand and gravel, while the roots of the reeds break apart the sludge," says Kinsley, who's heading up the reed bed pilot project near Alfred, Ontario. "The reed beds effectively dewater biosolids to

25% dry matter and provide sufficient storage time to stabilize biosolids prior to land application or disposal."

The filtered water is pumped to the wastewater facility's head works while the solids continue to accumulate. After five to 10 years, the solids are removed and disposed of (usually through application to agricultural land). Hundreds of European cities are making successful use of reed beds to handle sludge. It makes one question why the process isn't being used more widely in Ontario.

"There's no doubt, Canada is lagging behind in adopting this technology," says Dr. Peter Ollos, Process Specialist with

the Ontario Clean Water Agency. "It's an extremely simplistic yet effective solution. It's environmentally-friendly, it doesn't use any process chemicals. It's a low cost, low energy, low maintenance technology. Other than filtrate pumping, it doesn't have any mechanical parts to purchase or repair. Once it's set up, you simply let it do its work."

Kinsley says Canada's climate makes use of reed beds particularly attractive. "In summer, the reeds help the dewatering process along, while in the winter, you can operate them as freezing beds. You apply one layer of sludge at a time and let it freeze, then add another layer, etc. As ice crystals form, they push out anything that isn't water. It's a very efficient method of solid/liquid separation. Reed beds are attractive because you simply let the sludge accumulate in the reed beds and you only have to desludge once every 5-10 years."

Kinsley says the reed bed technology is best-suited for rural municipalities, where the cost of land is lower. If you're interested in investigating the potential use of reed bed technology for your community, please contact Peter Ollos at 416-389-7122 or pollos@ocwa.com.

Researchers find 'surprisingly high' bacteria levels in Canadian bottled water

A group of Canadian researchers made headlines recently when they said some bottled water in Canada contains higher bacteria levels than tap water.

Researchers from C-Crest Laboratories Inc., a Montreal-based company, recently discovered 'surprisingly high' levels of heterotrophic bacteria in about a dozen brands of bottled water. Heterotrophic bacteria require an organic carbon source in order to grow.

"This amount of bacteria is alarming, as if we are ingesting a cup of culture."

says Sonish Azam, a C-Crest researcher involved with the study.

Health Canada has no limits on the amount of heterotrophic bacteria allowed in bottled water and says they don't pose an immediate danger. However, many health advocates say the presence of heterotrophic bacteria in high levels is a sign of serious problems in the manufacturing facility.

The findings raise important questions about health and safety standards that are applied to the bottled water industry.



Festivals encourage kids to protect water resources

Many of us depend on Ontario's lakes, rivers for drinking water, commerce, industry and transportation. At the same time, it's easy to overlook the importance and fragility of our water resources.

Good water use habits don't happen by accident. They require education. And the earlier that message can be delivered, the better. That's the thinking behind the Eastern Ontario Children's Water Festival, which just completed its eighth successful year of providing area youngsters with hands-on and minds-on lessons in good water habits.

"This past year, we ran three festivals for Grade 4 students in the communities of Cornwall, Casselman and Spencerville. This year alone, we educated more than 2,500 students about the importance of preserving and protecting our water resources," says Lindsay Lefebvre, Festival Coordinator. "It's a fun way to teach kids important lessons about how to help ensure a safe water supply for generations to come."

Each three-day festival consists of nearly 30 Water Discovery Centres, which feature fun, interactive and educational activities for children. The festivals, which are facilitated by the St. Lawrence River Institute of Environmental Sciences, are presented free of charge, thanks to donations, grants and the generous volunteering of time by area high school students who operate the Water Discovery Centres.

For information about the 2011 Eastern Ontario Children's Water Festival schedule, please visit www.riverinstitute.ca and click on 'Education'.

Photo: Students from a Cornwall elementary school learn about oil spills and the impact they can have on the ecosystem. Here, the children are using a 'sock boom' to contain a miniature oil spill.

Budding artists continue to shine in OCWA contest

Of all the community-based programs OCWA runs each year, our Young Artists Contest has to be among the most popular.

Earlier this year, we encouraged youngsters across the province to submit their masterpieces for two separate Young Artist contests. Winning entries would be profiled in OCWA's 2010 holiday season cards and our 2011 calendar. After the crayons were put away and the precious creations were submitted, our judges were left with some very difficult decisions.

We received numerous submissions from artists ranging in age from 1 to 16 from all corners of Ontario. Their works of art were beautiful, insightful, funny and inspiring. In the end, we selected three winners for our 2010 holiday season cards and 14 winners for our 2011 calendar. The winning holiday cards are pictured here.

In addition to having their artwork profiled across Ontario, each winning artist will also receive a \$100 gift certificate.

OCWA Jets top Canadian team at 2010 Operations Challenge

This past October, 200 of the world's top wastewater treatment professionals gathered in New Orleans to compete in the Operations Challenge – part of the 2010 Water Environment Federation Technical Exhibition and Conference. The competition (in its 23rd year), pits operations teams against one another in



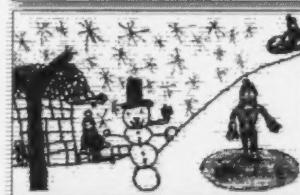
Left to right: Al Robdrup, Operator/Mechanic, Paris WWT; Michael Paola, Operator, Stratford WWT; coach Dennis Rau, Mechanic/Operator, Ailsa Craig WWT; Marcel Misuraca, Cluster Manager, Stratford Hub and Tom Nicol, Operations Technical Service Representative, Information Technology

And the winners are...

The competition was intense, but in the end, our judges selected the following submissions for OCWA's 2010 holiday season cards:



by Isabel, age 11



by Jenny, age 6



by Joseph, age 13



Congratulations to the winners and thank you to everyone who participated!

five events that test the diverse skills required to operate wastewater facilities: collection systems, laboratory, process control, maintenance and safety.

The OCWA Jets finished as the top Canadian team and fifth overall of the 27 teams in their division. "We're extremely proud of our team's performance, which speaks to the expertise, teamwork and professionalism we instill in all our operations and maintenance professionals throughout the province," said Ilmari Komulainen, Acting Vice President, Operations, Southern Ontario.



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